Designing Visualizations of Social Activity: Six Claims

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ABSTRACT
In this paper, we describe a set of claims that have evolved from our work in designing visual representations of groups in online environments. We argue that these claims can serve as a good starting point for design work, and can drive critical discussions amongst design stakeholders.

Keywords
CMC, chat, guidelines, instant messaging, multi-user environments, social computing, visualization.

INTRODUCTION
Personal computers are fundamentally social tools. From their earliest uses for the production of spreadsheets and other documents (whose social qualities are nicely described in Brown and Duguid [1]), through the rise of email as a ubiquitous form of communication, computers have been used to mediate communication among people. The current escalation of instant messaging (IM) technologies as channels for social and business talk is yet another illustration of the social nature of computing.

However, IM brings something new. The way in which IM is typically installed and used —launched at system start up and always on (if sometimes blocked)—brings a new level of social 'presence' into computer use, supporting both unexpected encounters and interruptions. This brings added import to the question:: *How should people be represented in computational contexts?* While this question has long been of interest to designers of multi-user environments and collaborative systems, it is becoming clear that rather than being an application-centered issue, the issue of how to represent people in computational contexts is an increasingly basic one.

In this paper we draw upon five years of experience of in designing (and observing the use of) representations of groups, as well as several years of experience in trying to transfer what we have learned from our experience to product and service designers. Our aim is lay out design claims that have emerged from our work, and describe their underlying rationale. We will begin by summarizing the work on which the claims are based.

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BACKGROUND
Since late 1997 my colleagues and I have been working with an ever-evolving program called "Babble" [4, 5]. Babble is a persistent chat system that supports everyday interaction among members of medium sized groups. The particulars of its design are unimportant; for the purposes of this paper, its most important facet it that it has provided us with an opportunity to observe how people have understood and interacted with its social proxy—a lightweight awareness mechanism that provides visual cues about the presence and activities of the participants.

Babble's social proxy is one example of an increasingly popular form of widget called a "social visualization." A social visualization is a visual (or sonic or other perceptual) representation of information from which the presence, activities, and other characteristics of members of a social collectivity may be inferred, and, by extension, can provide the basis for making inferences about the activities and characteristics of the group as a whole. Examples of social visualizations range from the minimalist work of Donath and her colleagues, e.g. [3], to the more mimetic representations found in 3D virtual environments, e.g. [2].

SIX CLAIMS
We refer to the following as "claims," rather than principals or guidelines, because, while we feel confident of their validity of our work, we are less confident that they apply to any collaborative system. Also, we believe that a number of the claims embody interesting hypotheses that other researchers might wish to investigate. Finally, in discussions with design stakeholders, framing the following as claims—rather than guidelines (which are to be followed), or principals (which are "true")—can lead to interesting and useful discussions of the roles which social representations can play in a system design.

Everyone sees the same thing; no customization
Design stakeholders often suggest that users should be able to customize social visualizations. For example, a user of Babble might wish to make themselves invisible to other users. While this is, at one level, a reasonable request, it is contrary to our aims. An important aspect of the power of a social visualization is the knowledge that everyone sees the same thing. If I see something, I know that you see it as well *and* that you know that I know. It is this mutuality that supports people being held accountable for their actions, and that leads to useful social phenomena such as feelings of obligation and peer pressure.

Portray actions, not interpretation

Social visualizations are often designed with a particular usage situation in mind, and thus it seems natural to surface the intended meaning of an activity in the visualization. However, systems often end up being used in unexpected ways, and what was supposed to be a feature for increasing ease of use (for the intended situation) becomes a bewildering or, at best, irrelevant feature. Instead, we recommend minimizing the amount of interpretation that is built into the system; let the users interpret—they understand the context better than the system ever will. For example, in Babble a the dot that represents a user moves to the middle of the Babble visualization when the user types or clicks. While the intent was that this indicate that the user is 'talking' (typing), or 'listening' (clicking to scroll), we have done our best to make it clear that Babble's social visualization is depicting input level activities and not user intentions. Our users have proved much more adept at providing appropriate interpretations than we could ever have built into the system. Even if it were possible to somehow accurately build interpretations into the system, we suggest this is a bad idea because:

Social visualizations should allow deception

In the course of our face to face interactions, it is often the case that we go to considerable effort to project impressions that don't represent our underlying feelings. We may feign interest, nod understandingly when we are baffled, and act pleased to meet people we loathe. These are vital social skills, and the last thing a social visualization should do is undermine them. Thus, it is useful that one can feign attention in Babble (by clicking on the screen to zoom one's dot into the middle), and it is also useful that one can feign ignorance ('Sorry, I didn't see your question—I clicked on the screen when switching to another program').

Support micro/macro readings

Whenever possible, a social visualization should be built up out of many small components which persist. Ideally, over time, information will accrete into recognizable patterns at multiple levels, what Tufte [6] has called micro/macro readings. For instance, Babble has a social visualization called the Timeline [4], that depicts the activity (presence and talking) of the group over the last week. Thus, for groups on the same continent, activity tends to occur during non-sleep hours, and a temporal representation will show 'sleep bands,' and other shifts in activity due to weekends, holidays, and other more global influences. Both these large scale patterns, as well as their fine structures and perturbations thereof (e.g. activity in what is normally a sleep band) carry information for those users who understand the context.

Ambiguity is useful: suggest rather than inform

When we discuss social visualizations with engineers, a common concern is how well they scale: this works well for a dozen people, they say, but how about thousands? Our response is that accurately presenting information is not the point of a social visualization; its primary role is to provide grist for inferences, and, in fact, it is less important that the inferences are correct. Our users have proved very comfortable with making best guesses from incomplete information. Thus, it is OK to distort activity, to magnify small amounts of activity, and to dampen large amounts of activity; for example, it is much more important for users to be able to tell whether there are 3 or 7 people present, than whether there are 103 and or 107 present. Ideally, the ambiguity of the visualization should be clear to users.

Use a third-person point of view

Although it might be argued that user's do not need feedback on their own activity since they know what they're doing, our experience is that this is quite important. People learn what elements of the social visualization mean by watching it over time, and, particularly, by seeing their own behavior reflected in it. For example, in Babble, we have observed groups figuring out the social visualization by group experimentation ('I clicked and my dot moved to the center!'). Thus, a social visualization should show its users their own activity as others would see it.

CLOSING REMARKS

These claims have proved valuable to us, both in guiding our design work, and in promoting discussions with design stakeholders or other recipients of our ideas. They raise a number of issues which we don't have room to address here. However, we will end with the perennial question of privacy. Our design approach is to try to make online systems into the equivalent of co-located spaces: our intent is that they look and feel like public places, so that users can use their very well-practiced skills at managing their appearance to govern their disclosure as they do in face to face situations.

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